

rather than the origin of its form and the country in which it first appeared. He did not wish, however, that it should go forth that meeting adopted all that they had heard from Mr. Fergusson of the early use of the pointed arch in the east; he begged to enter his protest against the high antiquity proposed to be given to those parts of the buildings referred to which contained it. As regarded the whole of the illustrations of the first class referred to, with one exception, the term arch was altogether inapplicable—the principle was wanting—the form was there; so it was in the first book of Euclid; but forms were not arches: these examples were simply openings formed by stones overlapping one another, and such as any one might make in a common ashlar wall by knocking out the stones. Mr. Fergusson had applied the term "horizontal arch" to this form; he (Mr. S.) understood a very different form under that term—a form very common in Gothic architecture, consisting of a stone beam formed of several pieces joggled together; there you had the principle of the arch. As regarded the buildings of Cairo, there were no doubt a great number which contained pointed arches, but the important question was, what was their date? The proof that was necessary to establish their antiquity was to be sought for under this head, rather than from the frequent occurrence of the feature. Again, Mr. Fergusson had said that the mosque of Amrou had been much pulled about and altered; how could it be proved at this day that the parts in which the pointed arches occur were not amongst the very parts that had been so altered? We should be very chary in receiving assertions as to date, and look very carefully at the proof: if proof most conclusive and satisfactory be wanting, this theory falls to the ground. As regards the question of the introduction of the pointed arch in Europe, he held the opinion that no new feature was adopted in the architecture of the middle ages, which had not some useful property contained in it. He believed he might go further and say that, in proportion to the utility of a member was the degree of ornament it received; he would content himself, however, at present, with the former axiom. Of the sixty-six theories contained in Britton's fifth volume of the "Architectural Antiquities," only two attempted to account for the introduction of the pointed arch on this ground. One of these was the well-known theory, due to Dr. Whewell, and enlarged upon by him in his interesting work on the German Churches, which attributed the introduction of this form to the exigencies arising out of the difficulties of vaulting an oblong space, with circular arches, in horizontal courses, as exemplified in the buildings on the Rhine. The other was that advanced by Dr. Young and Mr. Weir, namely, that the use of the pointed arch was originally due to a discovery of its usefulness in diminishing lateral pressure. He (Mr. S.) was disposed to take the latter view; and for reasons that he was about to give at large, in a work now in the press, on the "Early History of the Pointed Arch in the south of France," and which he would shortly explain, with the assistance of some of the plates which he had with him, and which included views and sections of some of the very buildings which Mr. Fergusson had referred to,—the whole of which he had himself visited and measured. In the first place, he must join issue with Mr. Fergusson in reference to his assertion that the pointed arch occurred generally under the circular arch in those buildings, and that its use was therefore anterior to the latter in point of time. He was prepared to maintain that there was a law which regulated the use of the two forms in the same building, and that a very important one,—but one very different from that laid down by Mr. Fergusson, and one evidently traceable to the cause already alluded to. The arches used in the churches of the middle ages might very properly be divided into two classes,—those used for the large openings, such as the vaulting arches, the arches of the crossing, and the pier arches, and which may be said to constitute the framework of the building; and those used for the smaller openings, such as the doorways, the windows, the arcades, &c., and which might be said to belong to the panelling of the structure;—the former class might be properly termed arches of construction, and the

latter arches of decoration. In the buildings of the transitional period,—and he was disposed to accept that term, as belonging *par excellence* to those buildings which exhibited the transition from the circular style to the pointed style,—he was prepared to assert, that for nearly half a century the pointed arch was used in the arches of construction, and the circular arch in arches of decoration. This rule was not laid down upon the authority of a few isolated examples; he had a list of no less than eighty buildings in England, France, and Germany, which he had himself visited, in which this law obtained; and he had no doubt that the attention of the members of the Institute being called to the fact, this list would be hereafter very considerably increased; he spoke only of what had fallen within his own personal observation, and he thought that a good rule for every one to follow. Mr. S. then read part of the list of examples to which he referred, and explained that a few exceptions existed, but that they were not of that nature, or to that extent, as in the least to invalidate the law as applied to the whole of the earlier buildings of the transitional period. He stated that the number of buildings belonging to this period was much greater than was generally supposed, even in this country, and that they abounded on the continent; that they possessed peculiar details and characteristic marks perfectly distinct from those which belonged to the Norman, as well as the Early English period, and such as entitled them to separate classification. He explained, that in the latter part of the period the pointed arch began to find its way into the arches of decoration, as in the choirs of Canterbury and Ripon Cathedrals, the former of which belonged to the years 1155-1190; and immediately afterwards rapidly and universally in this country superseded the circular arch. As regarded its introduction into other parts of Europe, he believed that it was in the south of France that its earliest employment was to be looked for; the most usual mode of roofing the large spaces in that country in the Romanesque period was by a longitudinal barrel vault, or semi-cylinder, running the whole length of the building; this plan obtained in most of the large cathedrals, as St. Saturnus, at Toulouse, and the Cathedral of Valence, both of which belonged, upon unquestionable evidence, to the middle of the eleventh century. This was, therefore, naturally the place where we should look for the first appearance of the pointed arch; and here it is in fact that we first find it. We find it accompanied, or rather almost immediately followed, by that slight alteration of detail in the moulding and sculpture which accompanied its introduction in other countries,—and, as a natural consequence, by that reduction in the solid thickness of the walls, and that concentration of abutment at particular points, which indicated here, as elsewhere, the progress of science in construction. To premise, as Mr. Fergusson did, that this style preceded the other; that the pointed arch, in these countries, was anterior to the circular; that the builders went back, in fact, from this advanced point to earlier and ruder principles, was impossible, and was certainly unsupportable by documentary evidence of any kind. Mr. Sharpe then exhibited views and sections of the Cathedral of Vaison, to which Mr. Fergusson had referred; the Cathedral of Sisteron; the Abbey Churches of Cadouin and Notre Dame, at Digne, and other buildings containing the pointed barrel vault, in support of his assertions,—the actual ascertained dates of which, he stated, bore out what he had said; and in the whole of which the pointed arch was used not only in the vaultings to which Mr. Fergusson supposed it was confined, but in all the other arches of construction, whilst the circular arch prevailed uniformly in the arches of decoration. The speaker then proceeded to notice a class of buildings in which the pointed arch occurred, of a very early, interesting, and peculiar kind, in the west of France, limited both as to number and the district in which they were found, which had been mixed up with those he had just been describing, but which were totally distinct from them, and, in fact, unlike anything else that he knew of in the western parts of Christendom. The type after which these buildings were planned was that of the Church of St. Mark, at Venice—

or to go higher still, that of St. Sophia, at Constantinople—and consisted of five large square compartments, forming the Greek cross, and covered with five large hemi-spherical domes, supported by pendentives resting on enormous square piers. This was the type of the plan of the whole of them. In some the design had been mutilated, in others never entirely carried, and in others slightly modified, to suit western requirements; but in the Cathedral of St. Front, at Perigueux, the genuine Byzantine design is presented in its unmitigated Eastern aspect. He then exhibited parallel views of the interior of St. Mark's, Venice, and the cathedral of Perigueux, taken from the same point of view, which presented, with one exception, identically the same features, that exception being the occurrence, in the French building, of the pointed arch in place of the circular arch of St. Mark's; in the large arches which support the domical vault. He exhibited also views and plans of the cathedral churches of Cahors and Angoulême, and the abbey church of Souillac, all similar in their main features to St. Front. To the earliest of these buildings he was disposed to attach a very early date, not only on account of the extreme simplicity and rudeness of the work, and the nature of their details, but also, in the case of St. Front, on account of a certain striking correspondence of fact between the internal and external evidence of the building. He declined, however, to enter into this part of the question, or to make any assertion at that moment as to the period at which the pointed arch was thus used in this part of France, further than to declare his belief that these buildings were earlier than the class he had previously noticed; and, therefore, in his opinion, the earliest not only in France but in the west of Europe. The question still remained for solution—How came these buildings, so unlike anything that remains in the countries un-influenced by the Greek church, to be planted in this foreign soil? Was the pointed arch, as seen in these buildings, introduced along with the plan, or was it a local adaptation? We find it neither in its type (St. Mark's), nor its archetype (St. Sophia's). But is it likely that so important a feature was an insertion in a design which displays in every other part so unequivocally its foreign origin? He Mr. S. was not disposed to think so. He looked upon the determination of this question as one of no small interest in the history of the pointed arch, and one which might possibly lead to the conclusion that this form did in reality come to us from the East; but it was to be entered upon in a spirit of careful inquiry, and the facts were to be proved, step by step, in a manner which should leave as little room as possible for speculative opinion, or mere conjecture; and, above all, without hastily accepting or rejecting the dates which we might find handed to us by previous inquirers; and, never, if possible, without reference to the original records or the earliest existing documentary evidence, bearing upon the history of the building in question.*

FIRE-PROOF CEILINGS OF WIRE-WORK have been successfully applied, in place of bath, with plaster and stucco, at the Chester Lunatic Asylum. The wires are about 1 in. apart, and the plaster forms an adhesive and serviceable mass, even on both sides. The wire is galvanized, or japanned, to prevent corrosion. Not only ceilings, one would think, but thin partitions and walls in general, might be wired in place of lath, and risk of fire thus greatly diminished by a process neither patented nor costly.

THE NORTH KENT LINE OF RAIL, which will bring London into immediate railway communication with Lewisham, Woolwich, Dartford, Gravesend, Strood, Rochester, and Chatham, is now about completed, and is to be opened for passengers about the middle of July. The new portion, between London-bridge station and Gravesend, is 23½ miles in length, and, exclusive of rails and stations, the cost of construction—the original contract estimates for which were fixed at 635,000—will amount, it is stated, to 400,000, only.

* At a meeting of the Institute, held on the 2nd inst. Professor A. Scherz read an important paper on the present position of architecture, to which we shall give due attention.